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THE MEDIATION OF STUDY HABITS AND LEARNING MOTIVATION IN THE LINK BETWEEN TUTORIAL PARTICIPATION AND ACADEMIC PERFORMANCE OF GRADUATES IN ILE-IFE, NIGERIA

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ABSTRACT

Background: Teaching approaches, learning strategies and motivation are among the factors that affect academic performance. While tutorial participation has been proven to improve learning, the ways in which it affects academic performance are unclear. This research explored the mediating effects of study behaviours and motivation in the relationship between tutorial participation and academic performance among graduates in Ile-Ife, Nigeria, and also included qualitative insights from the students' experiences.

Methods: We used a cross-sectional analytic mixed-method design in 81 graduates who were identified by complete enumeration. We used a questionnaire to collect information on learning habits, motivation (intrinsic, extrinsic, and general), as well as academic results. Focus group discussions were also held on the students' experiences of tutorial. Mediation analysis was carried out using the PROCESS Macro Model 4 in SPSS 30.0 ($p < 0.05$) and qualitative data were thematically examined.

Results: The most common study duration was 1-2 hours per day (46.9%) with most studying in the evening (68.8%) and choosing to study at home (77.8%). Motivation to learn was also high, with 84.4% believing lifelong learning was very important, as were intrinsic and extrinsic motivations.

Results of a mediation analysis of the findings revealed that tutorial participation was significantly associated with students' study habits ($B = 0.3479$, $p = 0.0002$, $R^2 = 0.208$) as well as intrinsic motivation ($B = 0.3124$, $p = 0.0239$) and general motivation ($B = 0.1519$, $p = 0.0319$). But study habits, intrinsic and extrinsic motivation did not significantly predict academic performance. It also found that there were no indirect effects of Tutorial on students' study habits (effect = 0.0721, 95% CI: -0.1237 to 0.2880) and total motivation (effect = 0.0802, 95% CI: -0.0746 to 0.2839), meaning there was no mediation.

Qualitative data identified that tutorials enhanced student learning experiences by increasing study motivation, intensity of reading, confidence and familiarity with the Computer-Based Test (CBT). Study habits were enhanced via group discussions, reviewing past questions, developing individual study schedules and peer-to-peer learning.

Conclusion: Tutorials have a strong positive impact on study habits and motivation to learn; these factors do not mediate the effects of tutorial participation on academic performance. However, qualitative evidence indicates that tutorials increase learning motivation, confidence and study habits. It seems that other learning and contextual factors influence academic performance beyond behavioural and motivational factors.

Recommendation: Universities should combine tutorials with academic monitoring and assessment frameworks to optimise behavioural change on academic performance. Students need to pursue outcome-focused learning, and curriculum designers need to improve learning support mechanisms.

1. BACKGROUND TO THE STUDY

Performance is a key measure of educational achievement, based on the degree to which students meet set outcomes. Yet research indicates that in many African nations, such as Nigeria, academic performance remains lower than international standards, and has declined in recent years (1). In higher education, academic performance is determined by a complex combination of teaching, student and environmental factors (2). As a result, tutorial sessions have become a popular supplementary teaching practice in educational institutions to enhance learning, engagement and performance.

Tutorial sessions are guided learning events between tutors and their students to supply individualised academic support and complement classroom teaching. They are especially crucial in technical fields where students need extra support to learn new subject matter (1). Research has demonstrated tutorials enhance learning through coaching, mentoring and individual instruction, which facilitates the learning and development of skills (3,4).

Additionally, successful learning is closely associated with practise and engagement, which tutorials can offer (5,6,7). However, the success of tutorials is not guaranteed as student-level factors including study habits and learning motivation play a vital role in determining student learning outcomes from tutorials.

Study habits are the routine patterns and behaviours that students engage in while learning, and learning motivation is the intrinsic and extrinsic factors that drive engagement in learning activities. Tinto (8) suggests that success is the product of the interaction of students' personal attributes (such as motivation and commitment) and the academic environment. Likewise, Shuja (9) stresses the importance of cognitive and behavioural engagement in academic performance. Thus, study habits and motivation are important mediation factors that may help explain how participating in tutorials leads to better academic performance.

While tutorial programs are increasingly being employed in higher education, there is a dearth of empirical evidence on how tutorials contribute to academic performance, and the psychological and behavioural mechanisms that underpin this among Health Information Management students in Nigeria. Specifically, there is a lack of evidence regarding the potential mediation of the association between tutorial participation and academic performance by study habits and learning motivation. This underscores the need for localised studies to better understand these processes that can enhance the success of tutorial programs.

2. Statement of the Problem

Academic performance is considered a significant indicator of educational quality; however, student performance in many developing countries, such as Nigeria, is still not at an acceptable level (1). Although tutorial programs have been implemented in tertiary institutions as a means of improving learning and academic performance, their success varies. Some students still demonstrate low academic performance despite recent tutorial programs, implying that the anticipated positive impact of the tutorials may be under-realised.

A key issue is that how tutorial participation leads to improved academic performance remains unclear. While tutorials are anticipated to improve learning, variables such as study behaviours and motivation may have significant impacts on the effectiveness of tutorials (8,9). But there is little evidence exploring whether these factors play a role in mediating the relationship between tutorial participation and academic performance, especially in graduates of Health Information Management programs. This represents a gap in knowledge that impairs the capacity to develop evidence-based and targeted tutorial programs for this group.

3. General Objective

To describe study habits and learning motivation in relation to tutorial participation and academic performance.

Specific Objectives

1. To describe the study habits of graduates of School of Health Information Management, OAUTHC, Ile-Ife.
2. To describe levels of learning motivation (intrinsic, extrinsic, and general) of graduates of School of Health Information Management, OAUTHC, Ile-Ife.
3. To describe study habits and motivation across levels of tutorial participation of graduates of School of Health Information Management, OAUTHC, Ile-Ife.

4. Hypotheses

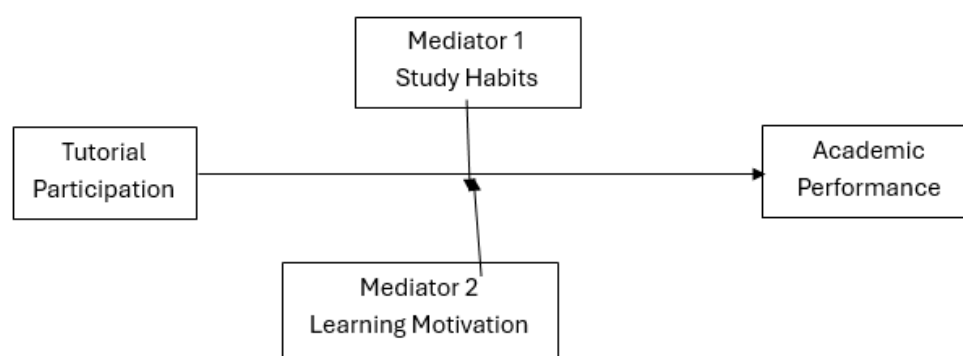
H₀₁: Study habits do not significantly mediate the relationship between tutorial participation and academic performance.

H₀₂: Learning motivation does not significantly mediate the relationship between tutorial participation and academic performance.

5. Conceptual Framework

This research conceptualises tutorial participation (independent variable) as affecting academic performance (dependent variable) through a series of mediating variables: study habits and learning motivation.

The model presumes that tutorial participation enhances students' study habits through regular study, effective time management and learning strategies. It also boosts learning motivation through heightened interest, engagement and self-confidence. In turn, these variables have a positive impact on academic performance (10,11). Therefore, study habits and motivation serve as psychological and behavioural mediating factors of tutorials on academic performance.



Source: Process Macro Model 4

6. Theoretical Framework (Constructivist Theory)

According to the Constructivist theory, learning takes place when people construct knowledge from their experiences and reflection (12,13). Fosnot (13) and Steffe and Gale (14), as cited in Ahakiri (12) also describe learning as a process where learners continually restructure their knowledge to accommodate new knowledge. Jonassen (15) also notes that learning is reliant on prior knowledge and cognitive processes.

In this study, the constructivist theory illustrates how tutorial attendance affects internal learning processes like motivation and study behaviours. By participating in tutorials, students adopt structured study routines and motivated learning by engaging with course content and tutors. These internal cognitive and behavioural adaptations become mediating factors in the learning process and impact student performance.

7. METHODS

The study design used was cross-sectional analytic. Study habits and learning motivation were tested as a mediator between tutorial participation and academic performance.

A sample of 81 graduates who attended tutorial sessions while in training and who had complete academic and behavioural data was selected for the study. A complete enumeration sampling technique was used.

A questionnaire and academic record were used to gather data. The questionnaire contained information on study habits (time spent studying, time of day, study environment and distractions), motivation to learn (intrinsic and extrinsic), and demographic information. Motivation was also broken down into general, intrinsic and extrinsic concepts measured on Likert scales.

Academic performance scores from before and after the tutorial were collected from the university. Informed consent was gained, with confidentiality and anonymity assured, before data collection.

Content validity was achieved through expert review by education and health information management experts, and internal consistency of constructs was measured using Cronbach's alpha (≥ 0.70).

SPSS 30.0 was used to conduct statistical analyses. Descriptive statistics were used to describe study habits and level of motivation. Mediation analysis was performed using Model 4 of the regression-based (PROCESS macro) analysis.

8. RESULTS

Table 1: Socio-Demographical Characteristics of the graduated students of SHIM, OAUTHC, Ile-Ife, Osun State.

Variable	Frequency (n=81)	Percentage (%)	Statistic
Sex			Mean = 1.2346 SD = 0.4547 Chi-Square = 2.188 DF = 3 P = 0.534
Male	14	17.3	
Female	67	82.7	
Age Group			Mean = 1.8272 SD = 0.3805 Chi-Square = 4.907 DF = 6 P = 0.556
18-25	63	77.8	
26-35	17	21.0	
36-45	1	1.2	
Level of Education			Mean = 1.7407 SD = 0.4410 Chi-Square = 11.915 DF = 3 P = 0.008
OND	21	25.9	
HND	60	74.1	
Employment Status			Mean = 1.1013 SD = 0.3036 Chi-Square = 1.354 DF = 3 P = 0.716
Unemployed	71	89.9	
Employed	8	10.1	

Sociodemographic status (mean score + SD) = 5.90 + 1.58

The socio-demographic profiles of respondents as shown in Table 1 reveals a higher proportion of females (82.7%) than males (17.3%). The proportion of males and females in this study was not statistically significant ($\chi^2 = 2.188$, $p = 0.534$). When it came to age distribution, a large proportion of the participants were between 18-25 years old (77.8%), followed by those in the 26-35 years old age group (21.0%) with only a few falling in the 36-45 years old age group (1.2%). This difference in age distribution was not significant ($\chi^2 = 4.907$, $p = 0.556$).

In terms of education, the majority of the respondents had HND (74.1%) whereas a proportion had OND (25.9%). This variation was statistically significant ($\chi^2 = 11.915$, $p = 0.008$) and suggested a significant difference in the educational level of the respondents. Regarding job status, a large proportion of the respondents were unemployed (89.9%) while only few were employed (10.1%). But this was not statistically significant ($\chi^2 = 1.354$, $p = 0.716$).

In all, the results indicate that the respondents were young, female, and held HND, and were largely unemployed, with only the educational level of the respondents showing statistically significant variation. Moreover, the overall socio-demographic status score was relatively high (mean = 5.90 ± 1.58), suggesting a relatively high degree of homogeneity in the distribution of respondents with respect to the socio-demographic variables.

Table 2: To describe the study habits and learning motivation of graduates of SHIM, OAUTHC, Ile-Ife.

Study Habit (F= 81)	Frequency	Percentage
How many hours do you dedicate to studying each day?	5	7.8
Less than 1 hour	30	46.9
1–2 hours	21	32.8
2–4 hours	8	12.5
More than 4 hours		
When do you usually study?	10	15.6
Early morning	1	1.6
Afternoon	9	14.1
Evening	44	68.8
Late night		
Where do you prefer to study?	5	7.9
Library	49	77.8
At home	9	14.3
In a study group		
How easily are you distracted while studying?	7	11.1
Not at all distracted	43	68.3
Slightly distracted	8	12.7
Moderately distracted	5	7.9
Very distracted		
Learning Motivation (F=81)		
General Motivation		
How important is continuous learning to you as a Health Information Manager?	54	84.4
Very important	7	10.9
Important	0	0
Neutral	0	0
Unimportant	3	4.7
Very unimportant		
What drives you to learn new skills or knowledge in your role? (Select all that apply.)	Yes F (%)	No F (%)
Career advancement	41 (64.1)	23 (35.9)
Staying updated with industry trends	22 (34.4)	42 (65.6)
Improving job performance	26 (40.6)	38 (59.4)
Personal interest or passion for the field	26 (40.6)	38 (59.4)
Organizational requirements	14 (21.9)	50 (78.1)
Intrinsic Motivation	Frequency	Percentage

How often do you engage in learning activities (e.g., workshops, courses, self-study) out of personal interest?	33	51.6
Always	13	20.3
Often	14	21.9
Sometimes	4	6.3
Rarely	0	0
Never		
Do you find joy or satisfaction in mastering new skills related to health information management?	49	76.6
Yes, always	8	12.5
Often	7	10.9
Sometimes	0	0
Rarely	0	0
Never		
How confident are you in your ability to learn and apply new concepts in your field?	22	34.4
Very confident	34	53.1
Confident	3	4.7
Neutral	2	3.1
Not very confident	3	4.7
Not confident at all		
Extrinsic Motivation	Frequency	Percentage
How often do organizational incentives (e.g., promotions, salary increments, recognition) motivate you to learn?	38	59.4
Always	19	29.7
Often	6	9.4
Sometimes	0	0
Rarely	1	1.6
Never		
How does external pressure (e.g., organizational deadlines, performance reviews) influence your motivation to learn?	17	27.0
Significantly increases motivation	40	63.5
Moderately increases motivation	1	1.6
No effect	5	7.9
Decreases motivation		

The results in Table 2 suggest that respondents had moderate and organised study habits. The most common daily study time was 1-2 hours (46.9%), with a significant proportion of respondents studying 2-4 hours per day (32.8%), indicating moderate dedication to study. Respondents reportedly studied mostly in the evenings (68.8%) and mostly at home (77.8%), suggesting flexible and comfortable learning settings. Furthermore, most reported being only moderately distracted (68.3%) while studying, indicating a good level of concentration.

In terms of motivation for learning, respondents had a strong motivation for learning and professional development. A strong majority (84.4%) believed lifelong learning to be very important, showing a high level of professionalism.

As for the motivational factors, career advancement (64.1%) was the most highly rated factor, followed by improving job performance and intrinsic interest, suggesting that both intrinsic factors and career aspiration are important for learning motivation.

In addition, intrinsic motivation was relatively high, as more than half (51.6%) of the respondents reported they always engage in learning activities because they have an interest in it, and a large majority (76.6%) report they consistently experience satisfaction when learning new skills. Learning self-efficacy was also strong, with the majority of the respondents being confident or very confident (87.5%).

Extrinsic motivation was also strong, as the majority of respondents reported they were consistently motivated by extrinsic rewards from the organisation, and many reported that external pressure (such as deadlines) moderately increases their motivation (63.5%).

In conclusion, the results indicate that graduates have well-balanced learning habits and high levels of learning motivation, which can be attributed to both intrinsic and extrinsic career-related factors.

Test of Hypotheses

Mediation (PROCESS Model 4)

H_{01a}: Study habits do not significantly mediate the relationship between tutorial participation and academic performance.

Table 3: Effect of Tutorial Participation on Study Habits (Path a)

Variable	B	SE	T	p-value	95% CI (LLCI, ULCI)
Constant	1.5887	0.2726	5.8281	.0000	[1.0436, 2.1338]
TU_PART	0.3479	0.0870	4.0004	.0002	[0.1740, 0.5218]

Model Summary:

$$R = 0.456, R^2 = 0.208, F(1,61) = 16.00, p = .0002$$

Table 4: Effect of Tutorial Participation and Study Habits on Academic Performance. (Path b & c')

Variable	B	SE	T	p-value	95% CI (LLCI, ULCI)
Constant	1.1105	0.7160	1.5510	.1262	[-0.3217, 2.5427]
TU_PART (c')	0.0173	0.2057	0.0839	.9334	[-0.3942, 0.4287]
STUDYHB (b)	0.2072	0.2695	0.7687	.4451	[-0.3320, 0.7464]

Model Summary:

$$R = 0.117, R^2 = 0.014, F(2,60) = 0.415, p = .6625$$

Table 5: Direct and Indirect Effects.

Effect Type	Effect	SE	95% Boot CI (LLCI, ULCI)
Direct Effect	0.0173	0.2057	[-0.3942, 0.4287]
Indirect Effect (via Study Habits)	0.0721	0.1021	[-0.1237, 0.2880]

The mediation analysis was performed to test the significance of the mediation effect of study habits on the relationship between tutorial participation and academic performance of graduates.

Table 3 shows that for the first pathway (Path a), tutorial participation significantly predicts study habits ($B = 0.3479$, $t = 4.0004$, $p = 0.0002$), suggesting that higher participation in tutorial sessions is related to better study habits. Around 20.8% of the variance in study habits is predicted by the model ($R^2 = 0.208$), indicating a moderate effect of tutorial participation on the development of study habits.

But the second pathway (Paths b and c') in Table 4 reveals that when tutorial participation and study habits are included into the model to predict academic performance, neither is significant. The finding indicates that study habits did not significantly impact on academic performance ($B = 0.2072$, $t = 0.7687$, $p = 0.4451$) and tutorial attendance did not directly impact on academic performance ($B = 0.0173$, $t = 0.839$, $p = 0.9334$). The model as a whole also had poor explanatory power ($R^2 = 0.014$; $F(2,60) = 0.415$, $p = 0.6625$), suggesting that the predictors are not significant predictors of academic performance.

More relevant, as shown in Table 5, the indirect effect of tutorial participation via study habits on academic performance was not significant, as the 95% confidence interval (CI) based on bootstrapping included zero (Effect = 0.0721, 95% CI: -0.1237 to 0.2880). This shows that the mediation is not significant.

In summary, although tutorial participation has a significant effect on study habits, study habits do not significantly predict academic performance in this model. Thus, study habits are not a significant mediator of the effect of tutorial participation on academic performance, and the alternative hypothesis (H_{01a}) is rejected.

H_{01b} : Learning motivation does not significantly mediate the relationship between tutorial participation and academic performance.

Table 6: Effect of Tutorial Participation on Motivation Variables. (Path a)

Outcome Variable	B (TU_PART)	SE	T	p-value	95% CI (LLCI, ULCI)	R ²
GE_MOTIV	0.1519	0.0692	2.1960	.0319	[0.0136, 0.2902]	0.073
IN_MOTIV	0.3124	0.1348	2.3168	.0239	[0.0428, 0.5820]	0.081

EX_MOTIV	0.1625	0.1059	1.5343	.1301	[-0.0493, 0.3742]	0.037
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Table 7: Effect of Tutorial Participation and Motivation on Academic Performance. (Path b & c')

Variable	B	SE	T	p-value	95% CI (LLCI, ULCI)
TU_PART (c')	0.0092	0.1953	0.0469	.9628	[-0.3819, 0.4002]
GE_MOTIV	-0.0289	0.3562	-0.0811	.9357	[-0.7419, 0.6841]
IN_MOTIV	0.1533	0.1960	0.7824	.4372	[-0.2390, 0.5456]
EX_MOTIV	0.2257	0.2400	0.9403	.3510	[-0.2548, 0.7062]

Model Summary:

$R = 0.210$, $R^2 = 0.044$, $F(4,58) = 0.669$, $p = .616$

Table 8: Direct and Indirect Effects.

Effect Type	Effect	BootSE	95% Boot CI (LLCI, ULCI)
Direct Effect	0.0092	—	[-0.3819, 0.4002]
Total Indirect Effect	0.0802	0.0899	[-0.0746, 0.2839]
GE_MOTIV (Indirect)	-0.0044	0.0562	[-0.1151, 0.1190]
IN_MOTIV (Indirect)	0.0479	0.0669	[-0.0734, 0.1976]
EX_MOTIV (Indirect)	0.0367	0.0588	[-0.0523, 0.1833]

A mediation analysis was conducted to examine the effect of learning motivation (general, intrinsic and extrinsic) in the relationship between tutorial participation and academic performance.

Path a: Tutorial participation on motivation as shown in Table 6. Table 6 shows that tutorial participation had significant effects on some of the factors of learning motivation. In particular, tutorial participation was a significant predictor of general motivation ($B = 0.1519$, $t = 2.196$, $p = 0.0319$) and intrinsic motivation ($B = 0.3124$, $t = 2.3168$, $p = 0.0239$), meaning that students who participated more in tutorials had higher levels of internal learning drive and general motivation. But it did not significantly affect extrinsic motivation ($B = 0.1625$, $t = 1.5343$, $p = 0.1301$), which indicates that external learning drive (such as receiving rewards or positive feedback) was not significantly affected by tutorial attendance.

Path b and direct effect (c') as shown in Table 7. When all motivation variables were put into the model predicting academic performance, none of the motivation variables were significant. As shown in the result, there were no significant relationships between academic performance and General motivation ($B = -0.0289$, $p = 0.9357$), intrinsic motivation ($B = 0.1533$, $p = 0.4372$) and extrinsic motivation ($B = 0.2257$, $p = 0.3510$). Likewise, tutorial participation did not significantly predict academic performance in the presence of the

mediators ($c' = 0.0092$, $p = 0.9628$), suggesting there was no direct effect in the presence of the mediators.

The model as a whole was not significant ($R^2 = 0.044$, $F(4,58) = 0.669$, $p = 0.616$), indicating that the predictors did not explain much variance in academic performance.

Indirect effects (mediation test) as shown in Table 8. The indirect effects obtained from bootstrapping also revealed a lack of mediation effects. The total indirect effect of tutorial participation on academic performance via motivation was not significant (effect = 0.0802, 95% CI: -0.0746 to 0.2839), as the confidence interval included zero. Likewise, the results showed that none of the specific indirect effects through general motivation (effect = -0.0044, CI: -0.1151 to 0.1190), intrinsic motivation (effect = 0.0479, CI: -0.0734 to 0.1976), or extrinsic motivation (effect = 0.0367, CI: -0.0523 to 0.1833) were significant.

From this, there was no significant mediation of learning motivation on the association between tutorial participation and academic performance among graduates from the School of Health Information Management in OAUTHC. So, the null hypothesis (H_{02b}) is upheld.

9. Qualitative Findings

Table 1: Themes, Sub-themes and Corrected Frequencies.

A. Learning Motivation

Theme	Sub-theme	Frequency (n=7 transcripts coded occurrences)
Learning Motivation	Reminded previously learned topics	3
	Understanding diagrams in anatomy	2
	Improved self-confidence in learning/exams	4
	Motivation to read harder/more	6
	Exposure to CBT exam structure	5

B. Study Habits.

Theme	Sub-theme	Frequency
Study Habits	Group discussion	18
	Revising past questions	7
	Asking and answering questions	6
	Class exercises/practice tests	5
	Personal study timetable/structured reading	4
	Deliberating/interactive topic discussion	5
	Increased reading frequency	9
	Positive influence on study habits (general code)	12

9.1 Descriptive Report of Findings

a. Learning Motivation

Analysis of the seven focus group transcripts showed that students had improved learning motivation from taking tutorials. The general trend among the participants was the increased motivation to study and willingness to engage more with the course content.

A number of participants expressed that tutorials helped them develop greater motivation to study regularly, particularly in the lead-up to exams. One participant reported that tutorials “made me read more and encouraged more effort to learn,” while another reported that it “motivates studying before the next class”.

Being exposed to CBT-style examination also proved to be an important source of motivation. Many participants mentioned tutorials aid in understanding what is in the examination, with one participant explaining that it “gives idea of how CBT questions would be structured.”

Furthermore, some participants noted reinforcement of learning, as tutorials re-engaged them with previous lessons. One participant described tutorials as “reminding topics learned previously” and another stressed the importance of visual representation of knowledge, noting tutorials were helpful in “understanding diagrams in anatomy”.

In summary, motivation was enhanced through a focus on exams, reinforcement of existing knowledge, and confidence building.

b. Study Habits

The study habits were the most prominent mediating factor affecting students' performance in the seven transcripts.

i. Collaborative Learning through Group Discussion

The most common study habit mentioned was group discussion, which was common to all groups. Students reported that working together helped to comprehend complex concepts. As one participant reported “we made study groups in the evening classes” and another participant stressed that “group discussion cleared doubts and facilitated better understanding”.

ii. Active Learning Practices

Students also reported active learning practices including discussion through asking and answering questions and doing class exercises. One of the respondents said, “we solve past questions together with peers” and another said, “class exercises helped reinforce learning”.

iii. Independent Learning Strategies

Students also engaged in individualised learning strategies. These were past paper revision, study schedules and topic revision. One student said, "I made a study timetable for my reading"; another stressed "I learnt revising past questions was important to find my weak and strong points".

iv. Increased Reading Behaviour

The most common theme in the transcripts was intensified reading. One common theme was that tutorials prompted reading more broadly and in-depth. One participant commented, "it helps me read more and understand better", while another said, "it made me read wider and focus on main points."

v. General Improvement by the Study Habits

Participants often simply described their experience by saying that tutorials "positively influenced study habits," and there was a general consensus among participants that participating in tutorials changed their study habits and discipline.

10. DISCUSSION

This research shows that although tutorial participation has significantly influenced key behavioural and psychological variables such as study habits and learning motivation, these variables do not play an important role in the association between tutorial participation and academic performance in graduates. The quantitative findings indicate that tutorial participation has significant and positive impacts on students' study habits, accounting for a substantial variance in students' learning behaviour. In turn, tutorial participation significantly explains general and intrinsic motivation, indicating that tutorial experiences are important in supporting students' intrinsic learning motivation. These results are in line with the constructivist theory of learning, which highlights the importance of active participation in the learning environment for cognitive and behavioural development (12,13), and other studies that have identified the influence of tutorials on engagement and motivation (3,4).

Despite these beneficial effects, the mediation analysis shows that study habits and learning motivation do not significantly predict academic performance in the model. The lack of indirect effects indicates that changes in study habits and motivation do not necessarily have a positive impact on the respondents' academic performance. This result is inconsistent with theoretical frameworks and previous empirical research, which suggest that behavioural and motivational variables play a crucial role in predicting academic performance (8,9). But it lends credence to the view that academic performance is complex and may be influenced by

other factors, such as teaching quality, assessment strategies and the contextual learning environment, which have not been fully accounted for in the model.

The low predictive power of the mediation models also supports this argument. In both models of study habits and motivation, only a small percentage of the variance in academic performance was explained by the models, suggesting that other unspecified factors may be more important. This is an important consideration in understanding the complexity of learning processes as it indicates that while tutorials are effective in modifying internal learning mechanisms, such mechanisms may not be enough to enhance performance in the absence of other academic supports. This finding aligns with Bedada (1), who observed that while change in learning behaviour may not directly affect academic performance in resource poor education settings.

The qualitative results shed light on this apparent lack of correlation between learning behaviours and academic achievement. Our students reported tutorial sessions improved motivation through increased engagement with academics, increased intensity of reading and confidence during examination. Tutorials also introduced students to the CBT examination format, which was highly motivating. These results indicate tutorials are successful in influencing students' readiness to learn and study behaviours. But while these gains were clear behaviourally, they may have not been strong enough or sustained enough to have a statistically significant impact on student performance within the timeframe of the study.

Similarly, study habits were a major behavioural change influenced by tutorial attendance, especially in relation to group discussions, active learning strategies and study timetables. The dominance of group learning and social interaction is consistent with the principles of constructivist learning, where knowledge is constructed by interactants (14,15,13). Tutorial students reported greater engagement in effective study behaviours, such as past paper revisions, classroom exercises, and the use of study timetables. Although these activities are theoretically associated with better academic performance, their non-significant mediating effect indicates that either the quality, consistency, or intensity of these activities may differ between students, and as a result may have a lesser effect on performance.

Moreover, the varying effects on motivation types adds to the picture. Although there were significant improvements in intrinsic and general motivation with participation in tutorials, there was no significant influence on extrinsic motivation, suggesting that external motivations such as rewards and recognition may not be significantly influenced by the involvement in tutorials. This implies that tutorials help to enhance intrinsic rather than extrinsic learning motivation. However, the nonsignificant association between all

dimensions of motivation and academic achievement suggests that motivation may not be enough to translate into academic performance without optimal learning environments and instruction.

In general, our results indicate that tutorial participation is pivotal for the development of study behaviours and learning motivation among graduates, but these factors are not mediating academic performance in the current study context. These findings reveal the multi-faceted nature of academic performance and suggest the need for a more holistic approach to understanding academic performance, which integrates behavioural, instructional and contextual factors. While tutorials are effective in shaping student learning behaviours, their influence on student learning outcomes may require other factors beyond intrinsic and extrinsic motivation and study behaviours. The insights from this study have significant implications for practice, suggesting it is important to promote not only tutorial participation but also the learning environment that allows students to translate improvements in learning behaviours into academic performance.

11. Theoretical Application

The findings of this study align with constructivist theory, which suggests learning is an active and internal process as a result of experience and reflection as argued by Lev Vygotsky (11) and Ahakiri, (12). The improvements in study patterns and motivation observed in the research participants indicate that participation in tutorials offered opportunities for learners to engage with academic content and through this, reconstruct cognitive structures as proposed by Catherine Fosnot (13) and Leslie Steffe and Jerry Gale (14), who contend knowledge is an ongoing process of construction and reconstruction. In addition, the contribution of prior knowledge and internal cognitive processes that David Jonassen (15) stresses is evident in the way the students' experiences in the tutorials led to improved learning practices, such as the development of regular study habits and increased motivation to study. These internal shifts acted as mediators between engagement with tutorials and academic outcomes, suggesting the effectiveness of tutorials is not just about content, but also about the cognitive and motivational structures of learners, although the differences in engagement suggest individual variability in the extent to which knowledge was constructed.

12. CONCLUSION

This research investigated the mediating effects of study habits and learning motivation on the association between tutorial participation and academic performance of graduates in Ile-

Ife, Nigeria. Results reveal that tutorials positively influence study habits, and increase general and intrinsic learning motivation. But neither study habits nor learning motivation significantly influenced the effect of tutorial participation on academic performance. This implies that while tutorials have a positive impact on the learning behaviours and internal motivation of students, these factors may not be enough to affect their academic performance. So, academic performance is likely to be determined by a combination of teaching and learning, environmental and personal factors in addition to study habits and motivation.

13. RECOMMENDATIONS

1. School of Health Information Management, OAUTHC should combine tutorial support with effective academic support strategies (e.g., assessment, feedback, and monitoring) to help students achieve academic success through better study behaviours.
2. Tutors and lecturers should ensure that they are not just teaching the subject matter, but also coaching students on how to apply study behaviours and motivation to performing well in examinations through exam-focused teaching and coaching.
3. Students or graduates should engage in more performance-focused study strategies such as goal setting, self-evaluation and regular practice using examination-style questions to enhance performance outcomes.
4. Schools should include training on study strategies and motivation in the curriculum to better connect study behaviours and performance.
5. Policy makers and regulatory agencies (e.g., HRORBN) should promote the design of holistic learning platforms that integrate tutorials with effective instruction, provision of resources and institutionalised assessment processes.

14. Limitations of the Study

This study had a small sample size and was conducted at a single university, which may affect the generalizability of the results. The cross-sectional nature is also a limitation that prevents causal inference with respect to the mediation effect over time. Further, using self-reported measures of study habits and motivation may lead to response bias and other variables that may influence academic performance were not considered in the model.

Other Information

Ethics Approval and Participant Consent

Ethical approval for this study was obtained from the appropriate institutional review authority of Obafemi Awolowo University Teaching Hospitals Complex prior to data

collection. Informed consent was obtained from all participating students, ensuring voluntary participation. Strict measures were implemented to maintain confidentiality and anonymity of all respondents, and all procedures were conducted in accordance with established ethical standards for research involving human participants.

Conflict of Interest Statement

Disclosure of conflict of interest: The authors declare that there are no conflicts of interest or competing interests associated with this study.

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Author Contribution Statements

SAO conceived the study, initiated the study design, participated in data analysis and coordination, and drafted the manuscript. AKA contributed to the study design and coordination and critically reviewed the manuscript for intellectual content. KEO also contributed to the study design and coordination and reviewed the manuscript. JKO participated in the study design and coordination and was actively involved in data collection and data analysis. All authors read and approved the final manuscript and agree to be accountable for all aspects of the work in line with the recommendations of the International Committee of Medical Journal Editors.

REFERENCES

1. Bedada, T. (2022). The Effects of Tutorial Class for Female Students on Their Academic Performance in Chemistry at Chiro Town Qilliso Primary School, Ethiopia. *International Journal of Education, Learning and Development*, 10(5), 54-64.
2. Shuja, A., Qureshi, I. A., Schaeffer, D. M., & Zareen, M. (2019). Effect of m-learning on students' academic performance mediated by facilitation discourse and flexibility.

- Knowledge Management & E-Learning*, 11(2), 158–200.
<https://doi.org/10.34105/j.kmel.2019.11.009>
3. Guerra-Martín, M. D. (2014). Tutoring as a way of achieving employability for nursing students at the University of Seville. *Procedia-Social and Behavioral Sciences*, 139, 479-486.
 4. Glomo-Narzoles, D., & Glomo-Palermo, D. (2020). Effectiveness of tutorials in improving the academic performance of english language learners. *International Journal of Language and Literary Studies*, 2(3), 141-152.
 5. Bryan, J., Williams, J. M., & Griffin, D. (2020). Fostering educational resilience and opportunities in urban schools through equity-focused school–family–community partnerships. *Professional School Counseling*, 23(1_part_2), 2156759X19899179.Jennifer, 2015;
 6. Kang, H. (2021). The role of mentor teacher–mediated experiences for preservice teachers. *Journal of Teacher Education*, 72(2), 251-263.
 7. Boadu, S. K., Arthur, Y. D., & Bonyah, E. (2023). Mediation and moderation effects of motivation and teaching quality on the relationship between peer tutoring and mathematics achievement. *Journal of Mathematics and Science Teacher*, 3(2), em039.
<https://doi.org/10.29333/mathsciteacher/13166>
 8. Stephen, J. S., & Rockinson-Szapkiw, A. J. (2021). A high-impact practice for online students: The use of a first-semester seminar course to promote self-regulation, self-direction, online learning self-efficacy. *Smart Learning Environments*, 8(1), 6.Shuja (2019)
 9. Okafor, E. O., & Osuafor, A. (2024). Moderated-mediation path analysis on the influence of students' variables on academic achievement in Biology in Onitsha Education Zone of Anambra State. *AAU Journal of Business Educators*, 4(2), 72-82
 10. Kirsten, K., & Greefrath, G. (2024). On-campus vs distance tutorials in preparatory courses for mathematics student teachers–performance gains and influencing factors. *International Journal of Research in Undergraduate Mathematics Education*, 10(2), 547-576.
 11. Coon-Carty, H. M. (1998). *The influence of subject-specific academic self-concepts on academic achievement from a Vygotskian developmental perspective: A longitudinal investigation*. Loyola University Chicago.

12. Ahakiri, V. (2023). TEACHING METHODS AND ACADEMIC PERFORMANCE OF ADULT EDUCATION STUDENTS IN CALABAR UNIVERSITY OF CALABAR, CALABAR. *CALABAR* (November 19, 2023).
 13. Fosnot, C. T. (2013). *Constructivism: Theory, perspectives, and practice*. Teachers College Press.
 14. Steffe, L. P., & Gale, J. E. (Eds.). (1995). *Constructivism in education*. Psychology Press.
 15. Jonassen, D. H. (1995). Computers as cognitive tools: Learning with technology, not from technology. *Journal of Computing in Higher Education*, 6(2), 40-73.
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